

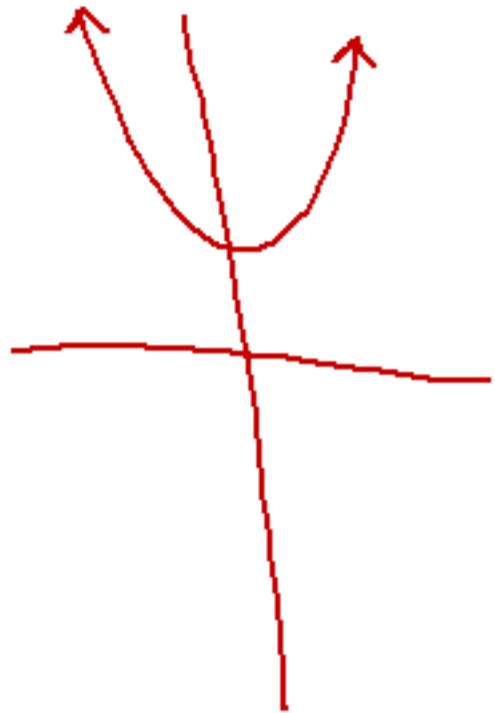
$$\textcircled{1} 0 = x^2 - 8x + 21$$

~~$$(x)(x)$$~~

$$a = 1$$

$$b = -8$$

$$c = 21$$



$$x = \frac{8 \pm \sqrt{(-8)^2 - (4 \cdot 1 \cdot 21)}}{2}$$

$$x = \frac{8 \pm \sqrt{-20}}{2} = \frac{8 \pm i\sqrt{20}}{2} \leftarrow \begin{matrix} 4^2 \\ 2 \end{matrix}$$

$$x = \frac{8 \pm 2i\sqrt{5}}{2} = \boxed{4 \pm i\sqrt{5}}$$

$$\textcircled{2} \quad 3x^2 + 11x + 10 = 0$$

$$(3x + 5)(x + 2) = 0$$

$$3x + 5 = 0$$

$$3x = -5$$

$$x = -5/3$$

$$x + 2 = 0$$

$$x = -2$$

$$\frac{2 \pm 3}{4}$$

$$5/4 \quad -1/4$$

$$\textcircled{3} \quad X^2 + 126 = 0$$

$$\sqrt{X^2} = \sqrt{-126}$$

$$X = \pm i\sqrt{126}$$



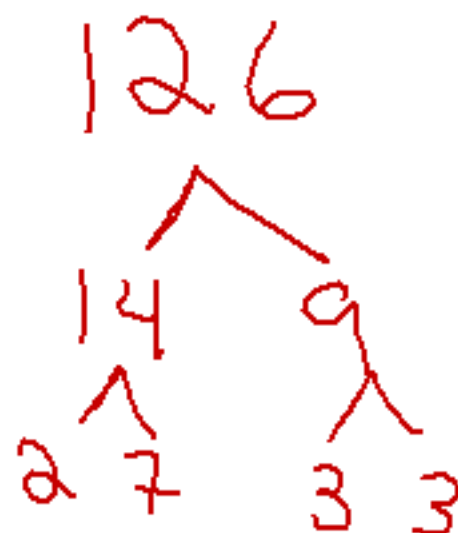
$$X = \pm 3i\sqrt{14}$$

$$X^2 + 0x + 126 = 0$$

$$a = 1$$

$$b = 0$$

$$c = 126$$



$$\textcircled{4} \frac{2x^2 + 10x + 42}{2} = \frac{0}{2}$$

$$x^2 + 5x + 21 = 0$$

~~$$(x)(x)$$~~

$$a = 1$$

$$b = 5$$

$$c = 21$$

$$x = \frac{-5 \pm \sqrt{5^2 - (4 \cdot 1 \cdot 21)}}{2}$$

$$x = \frac{-5 \pm \sqrt{-59}}{2}$$

$$= \frac{-5 \pm i\sqrt{59}}{2}$$

$$\textcircled{5} \quad x^2 - 8x - 4/8 = 0$$

$$(x-12)(x+4) = 0$$

$$\swarrow$$
$$x-12=0$$

$$\textcircled{x=12}$$

$$\searrow$$
$$x+4=0$$

$$\textcircled{x=-4}$$

HW

$$\textcircled{5} \quad X = \pm\sqrt{3} \quad X = 2/3$$

$$\textcircled{6} \quad X = 4, 2$$

$$\textcircled{7} \quad 36x^4 - 9x^2 = 0$$

$$9x^2(4x^2 - 1) = 0$$

$$\textcircled{7} \quad X = 0, \frac{1}{2}, -\frac{1}{2}$$

$$9x^2(2x-1)(2x+1) = 0$$

$$\textcircled{8} \quad X = \frac{3}{2}, \pm\sqrt{5}$$

$$9x^2 = 0$$

$$2x-1=0$$

$$2x+1=0$$

$$x^2=0$$

$$2x=1$$

$$2x=-1$$

$$x=0$$

$$x=\frac{1}{2}$$

$$x=-\frac{1}{2}$$

$$\textcircled{9} \quad x = \pm 1 \quad x = \pm i$$
$$x = \pm \sqrt{-1}$$
$$x = \pm i\sqrt{1}$$

$$\textcircled{10} \quad x = 0, -\frac{5}{2}$$

$$6x^2 + 15x = 0$$

$$(3x)(2x+5) = 0$$

$$3x = 0 \quad 2x+5 = 0$$

$$\textcircled{11} \quad x = -6, -7$$

$$\textcircled{12} \quad x = -\frac{2}{3}, -3$$

$$3x^2 + 11x + 6 = 0$$

$$(3x + 2)(x + 3) = 0$$

$$\textcircled{13} \quad x = 0, 4, -4$$

$$\textcircled{14} \quad x = 0, \frac{1}{12}$$

$$\textcircled{13} \quad 2x^3 - 32x = 0$$

$$2x(x^2 - 16) = 0$$

$$2x(x - 4)(x + 4) = 0$$

$$2x = 0$$

$$x - 4 = 0$$

$$x + 4 = 0$$



$$\textcircled{15} \quad x = \pm i\sqrt{2}, \pm 1$$

$$\textcircled{16} \quad x = -\frac{3}{2}, 4$$

$$\frac{12x^4 + 12x^2 - 24}{12} = \frac{0}{12}$$

$$x^4 + x^2 - 2 = 0$$

$$(x^2 + 2)(x^2 - 1) = 0$$

$$\begin{matrix} x^2 + 3x + 2 \\ ( \quad ) ( \quad ) \end{matrix}$$

$$x^2 + 2 = 0$$

$$\sqrt{x^2} = \sqrt{-2}$$

$$x = \pm i\sqrt{2}$$

$$x^2 - 1 = 0$$

$$\sqrt{x^2} = \sqrt{1}$$

$$x = \pm 1$$

$$\textcircled{16} \quad 2x^2 - 5x - 12 = 0$$

$$(2x+3)(x-4) = 0$$

$$2x+3=0$$

$$x-4=0$$

$$a=2$$

$$b=-5$$

$$c=-12$$

$$\textcircled{17} \quad x = -5$$

$$\textcircled{18} \quad 3x^3 + 375 = 0$$

$$3(x^3 + 125) = 0$$

$\nwarrow 5^3$

$$(x+5)(x^2 - 5x + 25) = 0$$

$$\textcircled{x = -5}$$

$$a = 1$$

$$b = -5$$

$$c = 25$$

$$x = \frac{5 \pm \sqrt{(-5)^2 - (4 \cdot 1 \cdot 25)}}{2}$$

$$\begin{array}{r|rrrr} -5 & 1 & 0 & 0 & 125 \end{array}$$

$$\downarrow \quad \begin{array}{rrrr} & -5 & 25 & -125 \end{array}$$

$$\hline \begin{array}{rrrr} 1 & -5 & 25 & 0 \end{array}$$

$$\Downarrow \quad x^2 - 5x + 25$$

$$\textcircled{19} \quad x = 2$$

$$x = -1 \pm i\sqrt{3}$$

$$\textcircled{20} \quad x = \pm \frac{5\sqrt{2}}{2}$$

$$x = \pm \frac{5}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$x = \pm \frac{5\sqrt{2}}{2}$$

$$\frac{8x^2 - 100}{4} = \frac{0}{4}$$

$$2x^2 - 25 = 0$$

$$2x^2 = 25$$

$$\sqrt{x^2} = \sqrt{\frac{25}{2}}$$

$$x = \pm \frac{5}{\sqrt{2}}$$